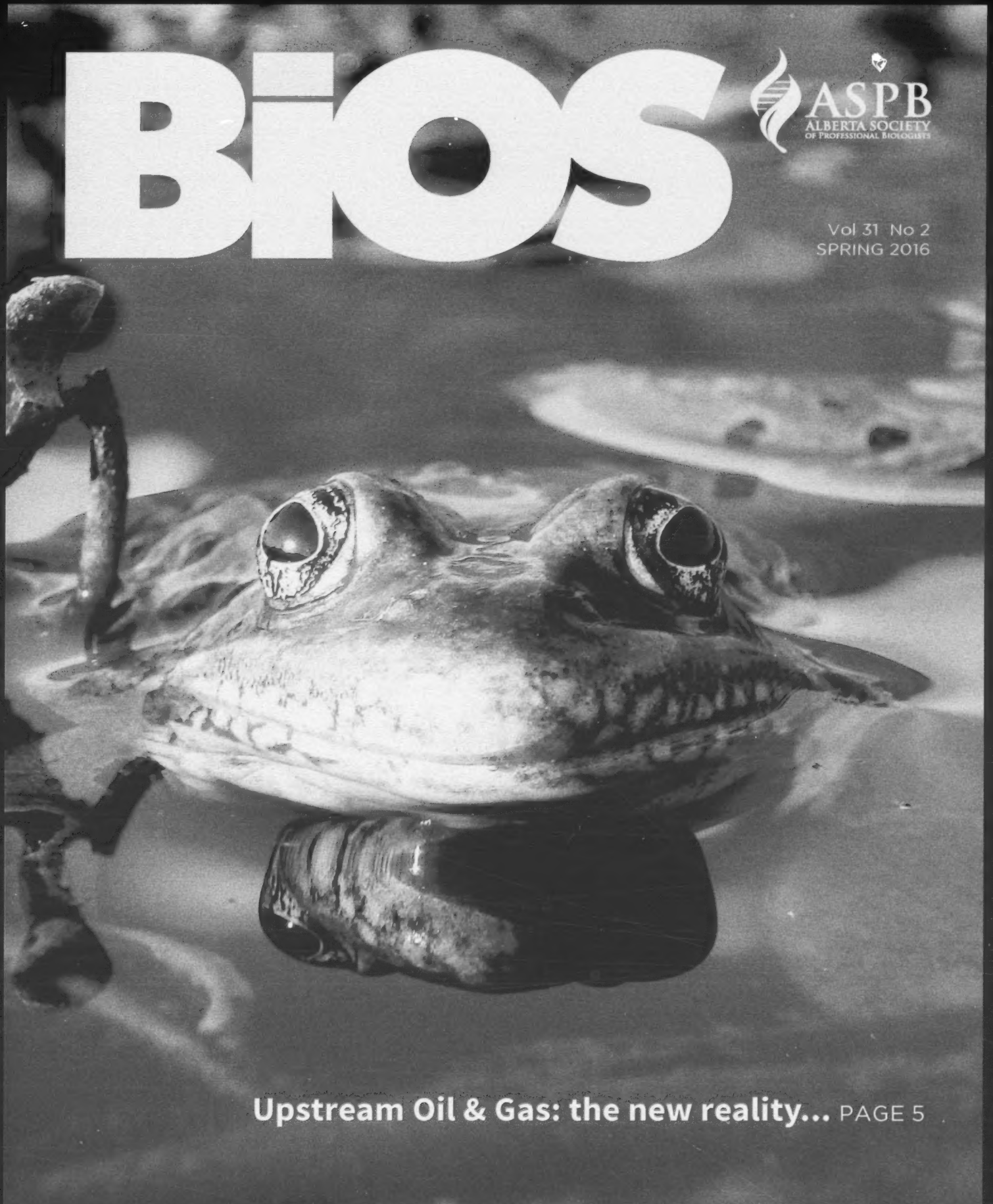
BIOS

ASPB
ALBERTA SOCIETY
OF PROFESSIONAL BIOLOGISTS

Vol 31 No 2
SPRING 2016



Upstream Oil & Gas: the new reality... PAGE 5

ASPB
ALBERTA SOCIETY OF PROFESSIONAL BIOLOGISTS

370, 105 - 12th Ave SE
Calgary, AB, T2G 1A1
T: 403.264.1273
E: pbiol@aspb.ab.ca
W: www.aspb.ab.ca

EXECUTIVE:

President
Shaun Toner, P. Biol.

President Elect
Elvie Reinson, P. Biol.

Secretary
Angela Holzapfel, P. Biol.

Past President
Chris Clement, P. Biol.

DIRECTORS:

Sara Bumstead, P. Biol.
Karoliina Munter, P. Biol.
Susan Patey LeDrew, P. Biol.
Gary Ash, P. Biol.

Public Member
David McInnes, ICD.D

ADMINISTRATION:

Executive Director
Jennifer Sipkens

Registrar
Sheila Leggett, P. Biol.

Administrative Assistant
Christina Golubic

COMMITTEES:

Discipline Chair
Brian Bietz, P. Biol.

Registration Chair
Erin Rooney, P. Biol.

Practice Review Chair
Carol Engstrom, P. Biol.

Awards Chair
Dave Ealey, P. Biol.

Professional Development (Calgary)
Ken Chatel

Professional Development (Edmonton)
Chris Newton, P. Biol.

Mentoring Coordinator
mentoring@aspb.ab.ca

BIOS

is published quarterly by the Alberta Society of Professional Biologists for the benefit of its members and for those interested in the field of professional biology. Opinions published in BIOS do not necessarily reflect the opinions or policy of the Society or its Board of Directors.

Managing Editor:
Jennifer Sipkens

Editor:
Peter G. Kingsmill

Articles or comments are welcomed and should be sent to announcements@aspb.ab.ca

... notes from the E.D.

A year ago, I mentioned in this space that (as we moved into the Society's 40th anniversary year) we had already been through a year of change. I was referring to organizational changes at the ASPB, and although there were shadows of change to come to our province's economy, I had little idea of how much we were destined to "live in interesting times" throughout our entire anniversary year.

Despite these challenges, your Society continues to evolve. Overall, this has been a great year for membership growth, as we currently have over 1800 members. The ASPB is now able to add Registered Technologists in Biology as well as Biological Technologists in Training, and we already have many applications in the queue under these categories. (These membership categories remain non-regulated until such time as the Professional Biologist Regulation is amended by the provincial government; that process is underway.)

Going forward, the Registrar will be reviewing all membership applications and will make recommendations for the registration committee to consider. This approach will further streamline the application process and enable the Registration Committee volunteers to focus on those applications which may be more complex. Sheila Leggett, our current registrar, has been instrumental in moving this procedural transition forward. As a result of these changes and the evolution of the ASPB, I have combined the Registrar position with other responsibilities that support ASPB members, and I am now in the process of recruiting for this position.

The new website is performing very well and we continue to undertake additional modifications to make the member-interface operate more smoothly and to add content that better serves our members as well as public visitors to the site.

We understand the current economic situation has created a very challenging time for many biologists. This has had an impact on our professional development events (where attendance has recently declined) and will likely influence attendance at the annual conference as well. The ASPB will continue to provide professional development by way of the Brown Bag Luncheon events (that are always free for members), and while we will, of course, continue to provide other professional development opportunities, we will be ensuring that the costs of participation are kept to a minimum for our membership.

(continued on page 11)

Cover Photo

The cover photo of a northern leopard frog was taken last spring in the Creston Valley Wildlife Management Area. Lea Randall (Population Ecologist for the Calgary Zoo's Centre for Conservation Research) and field assistant Josee-Anne Otis (the photographer) were there last May to help members of the BC northern leopard frog recovery team with breeding surveys for northern leopard frogs. Ms Randall is a member of the recovery team: "We conducted night time auditory surveys to locate calling males and then returned during the day to locate egg masses. The egg masses were then placed in enclosures to protect the eggs from predators (e.g. leeches, fish, dragonfly larva etc.) until the tadpoles had hatched and were free-swimming. We then transported the tadpoles to the reintroduction site in the Columbia Marshes. We conducted sequential water changes to acclimate tadpoles to local conditions; tadpoles were placed overnight in enclosures in the wetland and were released the next day."

ASPB President's Address

Shaun Toner, P. Biol., ASPB President

Despite the challenging economic conditions faced by our province in 2015, the ASPB continues to be a robust and thriving professional organization. Our membership has increased and now stands at over 1800 members. The continued increase in membership demonstrates the continued need for professional biologists in Alberta and that regulation through the ASPB is recognized as a means to protect the public of Alberta. In addition, our members recognize other values of being a member, such as networking opportunities, access to biological job postings and professional development opportunities.

Over the past year, the ASPB Board of Directors has been working to set the long-term direction of the organization. The Board held a strategic planning session in November, 2015 facilitated by a regulatory governance specialist. The Board reviewed the fundamentals of regulatory governance, established a mission and a vision for the ASPB, and set priorities for the future direction of the organization. The Board is currently expanding the Ends policies, which state the direction of the organization, to allow for the implementation of a rigorous continuing competency program in the medium term and to increase recognition of the ASPB as a professional regulator with the public, industry, and government in the long-term.

Our executive director was also given the mandate to develop an application review process that was fair and transparent. A review of the ASPB registration process for professional biologists was completed by a third party regulatory specialist. Based on feedback in the report, as well as consultation with the Registration Committee, the registration process has been – and will continue to be – streamlined to uphold high registration standards, while accepting a broader range of qualified applicants. To increase transparency, the Registration Committee Handbook is now available to all current and prospective members on the ASPB website. The handbook sets out the process used by the Registration Committee to evaluate applications and provides details on membership requirements.

The Ownership Linkage Committee conducted a survey that asked members, industry leaders and prospective members questions related to membership influence and merit, the definition of biology and ASPB organizational goals. The survey was a resounding success with over 540 responses. The majority of respondents had a positive view of the ASPB and understood that the organization exists to provide the Public of Alberta confidence that members are ethical and competent. The Board is currently reviewing the feedback and will use the information to continuously improve its service to the members.

"The continued increase in membership demonstrates the continued need for professional biologists in Alberta and that regulation through the ASPB is recognized as a means to protect the public of Alberta."

As my term as President comes to an end in early April, I am confident that our new Board, led by President Elvie Reinson, will continue to advance the organization in a positive direction. On behalf of the Board, I would like to thank our executive director, Jen Sipkens, who has continued to manage our organization with tenacity through all the opportunities and challenges of the past year. As we move forward, I know the ASPB will be in excellent hands and on behalf of the Board, I thank you all for your feedback and support.

ASPB Vision and Mission

Vision:
The ASPB demonstrates excellence in professional regulation. Members are trusted and recognized by the Public of Alberta.

Mission:
The ASPB is the provincial regulator responsible for protecting the Public by setting standards for qualifications, conduct, and continuing competency for the practice of biology.

Professional development committees continue to provide high-quality events

Volunteers with the Alberta Society of Professional Biologists take on the task every year of organizing professional development – and social – events for Society members. Long-serving Professional Development (PD) Committee chairs Ken Chatel (Calgary) and Chris Newton (Edmonton) have recently been joined by Danna Schock of Fort McMurray, to develop and conduct product development opportunities in their respective cities. Many – but certainly not all – of these PD activities fit the popular "BBL" (Brown Bag Luncheon) format, and an increasing number are also made available by webinar for folks who either can't get away from work to attend in person, or who are not living or working in the city where the events are held.

In Calgary this past year, the PD Committee had nine active members who got together for monthly meetings over lunch, either in person or by conference call. The Calgary committee hosted eight BBLs and five workshops over this last year, as well as a number of the popular "Bios & Brews" socials; in all, 450 ASPB members and non-members took part in the sessions (and over 60 by webinar). Workshop topics included Wetlands, Plant ID, Bird ID, Fish ID and Amphibian Monitoring.

In Edmonton, the PD Committee had three members in 2015.The first event of 2015 was an excellent presentation by Stephen Legaree, P. Biol., with Alberta Transportation on the wildlife tracking that is being done on Hwy 63 and the valuable data collected and how it is being used for future planning. In October, a full day introduction into Amphibian Monitoring and Inventory was offered with great success, and the last presentation of the year was in November (presented by Kevin Timoney) on impaired wetlands within NE Alberta related to bitumen exploitation. The committee also hosted a "Speed Dating with a Biologist" event for new biologists to meet some seasoned veterans.

On January 14, 2016, ASPB Member Danna Schock, P. Biol., hosted a meeting to see if there was any interest in setting up PD events in Fort McMurray. This preliminary meeting attracted 18 biologists from the northern city. In response, and operating as a "committee of one", Dr Schock set up (and delivered) the first Fort McMurray PD event for the ASPB: *Best practices for handling live amphibians and decontaminating field gear.* This very successful workshop was attended by 11 people (in person) and 6 via webinar (a few others had incurred problems logging in).

Dr Schock reports that there are six people helping organize activities in Fort McMurray, and are interested in setting up an "ASPB approved" PD Committee. There are some 34 interested people, of whom about half are ASPB members; this group is currently responding to a survey about future directions and events.

Awards Committee

Dave Ealey, P. Biol., Chair

The ASPB Awards Committee reviews annual nominations for several award categories: the Soper Award, the Peggy Thompson Publication Awards, the Distinguished Service Award, and the Volunteer of the Year Award. The committee selects the most suitable candidate for each award, based on the nominations received and criteria that assess the quality of each nomination and reflect the professional standards of ASPB. The committee meets each year following the close of nominations to ensure recognition awards are available for presentation at the subsequent Annual General Meeting.

Nominations for 2016 awards were reviewed on March 1, 2016. Nominations were received for Volunteer of the Year and two categories of Peggy Thompson Publication Awards. Results of the committee review of nominations will be announced at the 2016 AGM.

The results of the 2015 awards were announced at the last AGM and in the ASPB Bulletin and BIOS. Two publications were recognized with Peggy Thompson Publication Awards. The prolific Dr. Robin Leech, P. Biol., was the recipient of both for his interesting and well-written scientific paper and a publication communicating biological information to the general public.

The ASPB's second Distinguished Service Award was presented to Bette Beswick, a past president, registrar and a guiding light to the Society for many years. Bette's nomination by several members, including all members of the Registration Committee, was outstanding and thorough. Her accomplishments on behalf of ASPB are prodigious.

Annually, the Awards Committee helps with the coordination of Science Fair awards for the Edmonton Regional Science Fair. At the 2015 Science Fair, the Professional Biologists Award was presented to Sydney Comfort of Argyll Home School Centre for her project "Is Seeing Believing?" An Honourable Mention was awarded to Skye Sekulich of Busby School for her project "Bathtime for the Birds."

I thank Lorna Allen for her willingness to serve, on short notice, as a member of the Awards Committee. Thanks also to all ASPB members who made the effort to submit nominations for the Society's awards program. Recognition of members' accomplishments, and their contributions to the ASPB and the practice of biology in Alberta, are essential components of a professional society. I appreciate all efforts to support our awards program.

Upstream oil and gas reclamation & remediation: the new reality with a low oil price in Alberta

Elvie Reinson, P. Biol., R.P.Bio.

Alberta has an estimated 80,000 inactive oil and gas wells, of which the Orphan Well Association is responsible for 705[i]. For some perspective on the magnitude of this, the total number of reclamation certificate applications in 2013 was 1,049[ii]. At this rate it would take about 76 years for the reclamation and remediation of the current sites in the system, at a conservative, estimated cost of over $2.1 billion.

Reclaimed wellsite (can you spot where it was?) Photo Credit: Elvie Reinson

Who pays?

The licensee of a well is responsible for the reclamation and remediation of that well and its associated facilities. The licensee will use third-party environmental consultants to perform the reclamation and remediation work; if the licensee is no longer around, the wells become the responsibility of the Orphan Well Association (which is funded through industry by an Orphan Levy).

The process

The first step is to perform a Phase I Environmental Site Assessment (ESA) to determine if there is a potential for contamination at the site. If there is a potential for contamination, a Phase II ESA is performed to determine if contamination is present. If there is contamination on the site, it is remediated to the applicable Alberta Tier 1 or 2 Guidelines. For the last step, the sites have the surface reclaimed to Alberta Reclamation Guidelines. The site and all related facilities such as access roads, camps, logging decks, and so forth must be reclaimed and evaluated under the Alberta Environment Reclamation Criteria. Once all the work is completed, an application is made to either the Alberta Energy Regulatory (for private land) or Alberta Environment and Parks (for public land). If the application meets the guidelines, a Reclamation Certificate is issued and the surface lease is dissolved. There is currently no timeline for obtaining a reclamation certificate.

Currently

Because of increased environmental regulation in Alberta over the last 20 years, many of the newer sites are not high risk sites; it is the older sites, drilled and operated under older regulations, which have left behind a legacy requiring remediation. It can take five to ten years to achieve a reclamation certificate on these complex sites, and cost into the millions of dollars for one site.

Within the last year the number of orphan wells has increased over four times, from 162 to 702[iii] of which 100 wells came from four companies; this is a significant increase in the number of wells passed on to the Orphan Well Association[iv].

Why talk about the money?

The reclamation and remediation of wellsites in Alberta is done by educated, experienced and qualified environmental consultants, who work for money (like most people, they don't work for free). Remediating and reclaiming wellsites requires a multi-disciplinary approach with knowledge in biology, agrology, geology, hydrogeology, chemistry and other disciplines. In 2008, in order to ensure the quality of reclamation and remediation, the Alberta Government developed mandatory guidelines, setting high standards for anyone completing reclamation and remediation in the oil and gas sector. As a result, it is mandatory in Alberta to have a certain level of education, experience and accountability to complete work in this field.

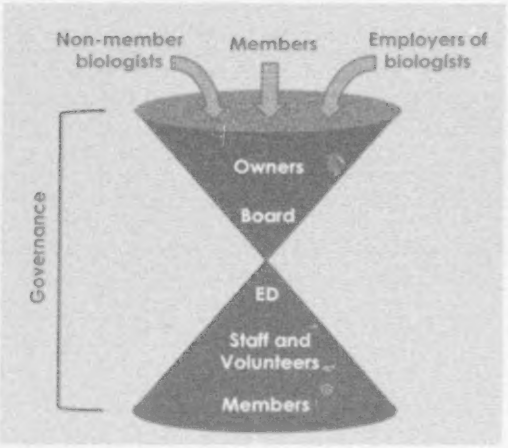
It is important to remember that reclamation and remediation are the responsibility of the licensee, and it is the licensee who must bear the costs. Since the recent drop in oil price, the oil and gas companies have less money and since they are businesses they cannot operate

(continued on page 9)

Who owns the ASPB, and what do they think?

by Karoliina Munter, P. Biol.

The ASPB board exists to provide a connection between the interests of the owners and the long-term goals of the organization. "Owner" is a term used in the Policy Governance® model to define those people to whom the organization owes its existence. Who, then, are the ASPB's owners? The legislation that gives ASPB the authority to govern professional biologists in Alberta is based on public protection; following this principle, the ASPB board has defined our organization's owners as the public of Alberta, which includes ASPB members as a sub-group.

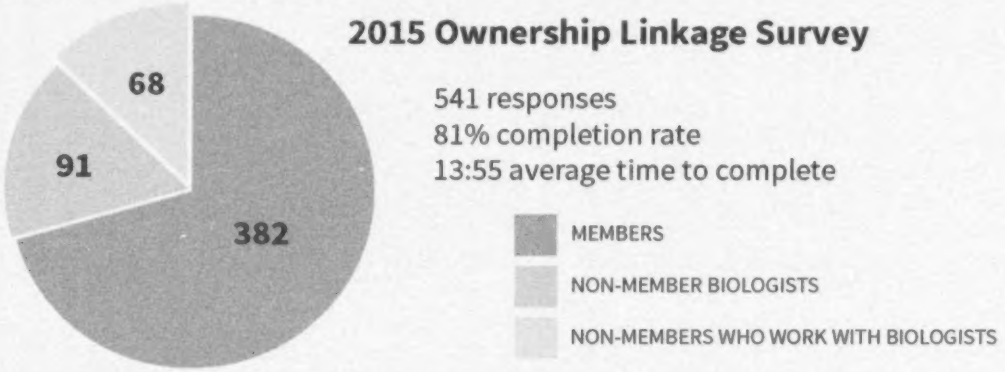


To be able to set informed goals for the organization, the board needs to take into account the owners' values and views of what the ASPB should achieve (and avoid). On the other hand, the board also needs to engage the owners to inform them of who the board is and what the board is doing. *"Governance exists in order to translate the wishes of an organization's owners into organizational performance"* (John Carver).

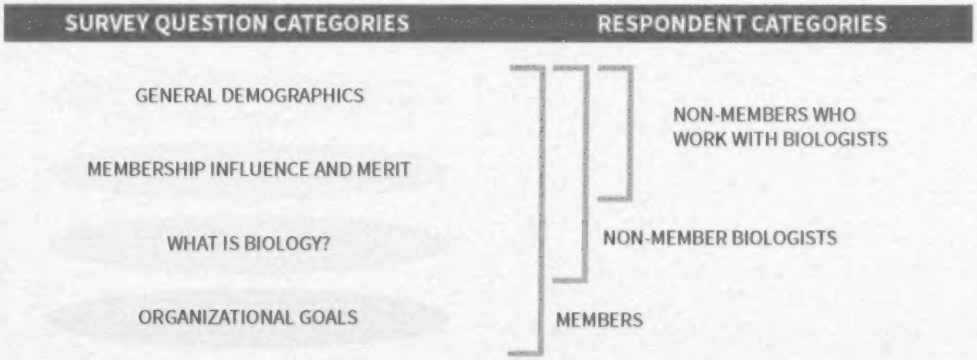
The board completed an online ownership linkage survey in fall 2015 to get input on important questions related to the strategic direction of the ASPB. The online survey directed the respondents into three separate questionnaires based on initial responses:

1. ASPB members
2. Non-member biologists
3. Non-members who work with of biologists

The survey was open from November 12 to December 14, 2015. We received a total of 541 responses, out of which 382 were ASPB members, 91 were non-member biologists, and 68 were non-members who work with biologists.

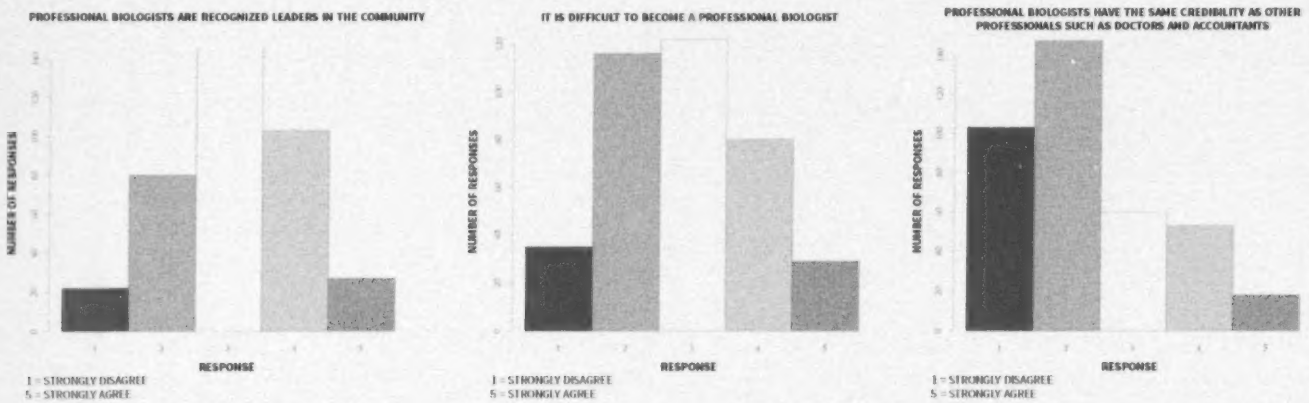


Each group received slightly different survey questions in addition to general demographics. The members were asked about ASPB's organizational goals, the influence and merit of ASPB membership, and how biology is defined. Non-member biologists were asked about the influence and merit of ASPB membership and how biology is defined. Employers of biologists were asked about the influence and merit of ASPB membership only.

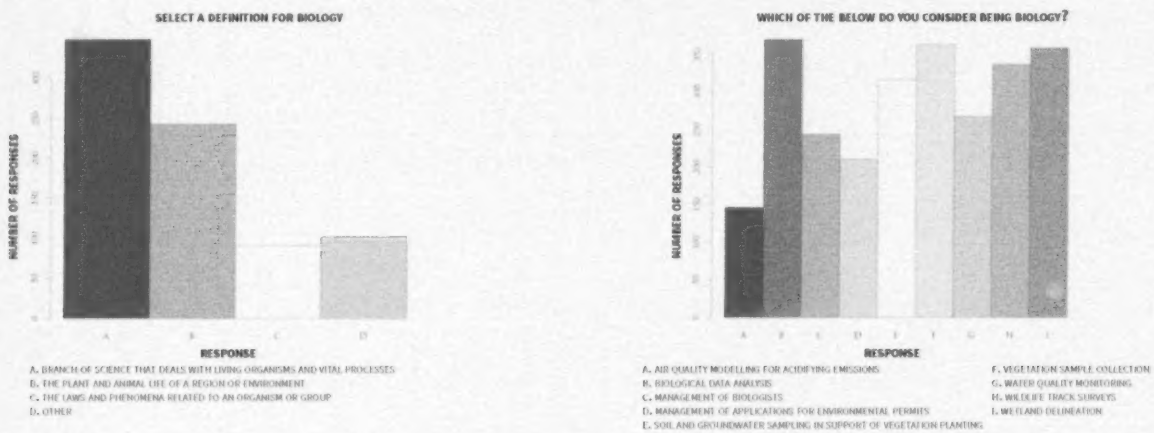


Here are some highlights of the survey responses from the members.

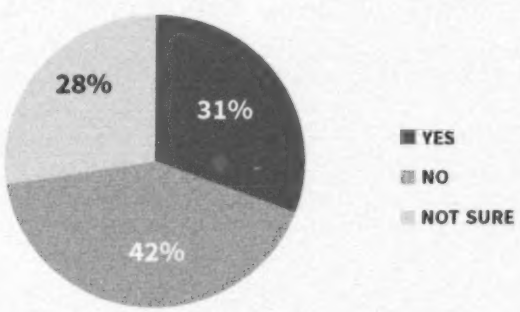
The following three figures show the members responses to questions about the ASPB **membership influence and merit**. Interestingly, members view ASPB membership influence and merit to be less compared to the responses from non-member biologists and non-members who work with biologists.


PROFESSIONAL BIOLOGISTS ARE RECOGNIZED LEADERS IN THE COMMUNITY
NUMBER OF RESPONSES
RESPONSE
1 = STRONGLY DISAGREE
5 = STRONGLY AGREE
IT IS DIFFICULT TO BECOME A PROFESSIONAL BIOLOGIST
NUMBER OF RESPONSES
RESPONSE
1 = STRONGLY DISAGREE
5 = STRONGLY AGREE
PROFESSIONAL BIOLOGISTS HAVE THE SAME CREDIBILITY AS OTHER PROFESSIONALS SUCH AS DOCTORS AND ACCOUNTANTS
NUMBER OF RESPONSES
RESPONSE
1 = STRONGLY DISAGREE
5 = STRONGLY AGREE

The membership's views shown in the next two graphs on **what is biology** indicate that our field involves many aspects in addition to the traditional 'counting of bugs and bunnies' type of biology, including management tasks, environmental permitting and working with physical aspects of the environment that interact with living beings.


SELECT A DEFINITION FOR BIOLOGY
NUMBER OF RESPONSES
RESPONSE
A. BRANCH OF SCIENCE THAT DEALS WITH LIVING ORGANISMS AND VITAL PROCESSES
B. THE PLANT AND ANIMAL LIFE OF A REGION OR ENVIRONMENT
C. THE LAWS AND PHENOMENA RELATED TO AN ORGANISM OR GROUP
D. OTHER
WHICH OF THE BELOW DO YOU CONSIDER BEING BIOLOGY?
NUMBER OF RESPONSES
RESPONSE
A. AIR QUALITY MODELLING FOR ACIDIFYING EMISSIONS
B. BIOLOGICAL DATA ANALYSIS
C. MANAGEMENT OF BIOLOGISTS
D. MANAGEMENT OF APPLICATIONS FOR ENVIRONMENTAL PERMITS
E. SOIL AND GROUNDWATER SAMPLING IN SUPPORT OF VEGETATION PLANTING
F. VEGETATION SAMPLE COLLECTION
G. WATER QUALITY MONITORING
H. WILDLIFE TRACK SURVEYS
I. WETLAND DELINEATION

The question of **should ASPB strive to be part of a larger organization** that would represent more than one type of environmental professionals received interesting responses from the membership. The following graph summarizes the free text responses that were received. Responses from individuals who are not members of the ASPB were more in support of being a part of a larger organization (44% non-member biologists and 62% for non-biologists support such an idea) compared to the members.



Editor's Note: *The author of this report, Karoliina Munter, P. Biol., has served as president of the ASPB (2013-14) and currently serves on the Board as a Director and Chair of the Ownership Linkage Committee.*

BOOK REVIEWS: Focus on Forests

The Chinchaga Firestorm

Reviewed by Bette Beswick, P. Biol.

The Chinchaga Firestorm, When the Moon and Sun Turned Blue by Cordy Tymstra is a new publication (2015) from the University of Alberta Press. It is about (mostly Alberta) forests – fire, ecology and policy. It fits into the same category as some of my favourite books on forests – Charlotte Gill's *Eating Dirt*, Timothy Egan's *The Big Burn*, and John Vaillant's *The Golden Spruce.*

In the *Acknowledgements* section, Tymstra refers to his work as a "puzzle", and I think that is the best way to describe the book. It is filled with a thousand bits of information, but the organization and linkages within the book fail to put the puzzle together. In fact, even though I read it twice, I still don't know if all the fires described in the first chapter were part of the Chinchaga Firestorm of 1950.

Chapter Two, "Black Sunday" is the best-focussed chapter in the book. It provides interesting accounts of how smoke from northern British Columbia and Alberta fires darkened the skies in eastern North America in September 1950, with a few tidbits of conspiracy theory thrown in.

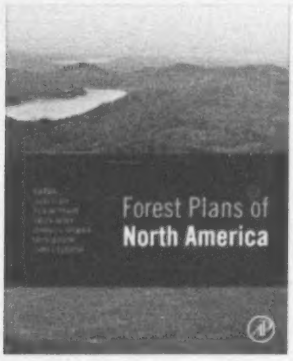
The next three chapters are also mostly about smoke and the associated fires. Chapter Four, "Blue Moon, Blue Sun" is particularly interesting because it relates to the book's namesake, the Chinchaga Firestorm. It describes how meteorological conditions and long-range transport of smoke caused particles of different sizes to sort out, resulting in the appearance of a uniquely coloured blue moon and blue sun. Unfortunately, a three-page discussion of the phrase "blue moon" which refers to uncommon events is plunked into the middle of the chapter, and creates an off-topic distraction to the phenomenon created by smoke transport.

Chapter Six, "The Big Wind" is a mixed bag. The first few pages discuss fire simulation modelling, which may interest forest fire specialists but holds limited appeal to a general reader. However, this is followed by an absorbing account of a survey party which played a cat-and-mouse game with forest fire during the crew's 24-day journey in the summer of 1950 in the Chinchaga River area.

"Policy Changes" is the title of Chapter Seven. The discussion wanders widely, often with little apparent connection to the evolution of forest fire policy, and no connection at all to the Chinchaga event.

Chapter Eight, "Ring of Steel" presents a broad-ranging discussion of fire-fighting techniques, starting with the value of bulldozers, then describing the use of aircraft and backfires. Scattered throughout the chapter are paragraphs on fire fighting policy, the value of fire as a natural process, FireSmart

(continued on page 11)



Forest Plans of North America

Reviewed by S. K. Basu, BIT

The *Forest Plans of North America* is an important 482-page publication which highlights several important forest plans that have been designed, developed and applied across different forest zones in North America. The editors point out in the preface that the contributing authors of this seminal volume have actually been involved in the design, structuring, application and monitoring of the relevant forest plans, and as such add a first-hand perspective to the experiences, successes and challenges of implementing forest plans on this continent.

The book has been divided into 49 well-researched chapters complete with high quality maps, charts, graphs, tables and references to afford readers an in-depth analysis of different forest plans executed in different forest zones. The majority (almost two-thirds) of the forest plans are from the United States, with marginal representation from Canada and Mexico.

The language of the volume is straightforward (not overly technical) and above all, engaging. The uniformity of the design of the chapters, well defined objectives, precision of the content and professional analysis of the forest plans are worth mentioning. This book will be greatly appreciated by professionals (researchers, foresters, biologists, range managers, ranchers and forest holders) as well as by non-academic readers interested in knowing about forest planning, forest management and forest policy development.

Forest Plans of North America (2015) by Siry, J. P.; Bettinger, P.; Merry, K., Grebner, D. L.; Boston, K. and Cieszewski, C. (Editors). Academic Press; USA. ISBN: 9780127999364 (Hardcopy) & 9780127999319 (E-book); Price: US$ 109.00

Member registration: 2015 marked by change and growth

by Erin Rooney, P. Biol., Committee Chair

This was a year of change and accomplishment for the registration committee. With the ASPB's focus on Policy Governance© and alignment with our bylaws, we had the opportunity to look carefully at the tools we are using to assess membership applications, on several fronts, and find ways to refine those processes.

For starters, over the past year we have made great progress on evaluating how we process applications. A new online-based and fully-electronic application system is now in place, and the *Registration Committee Policy Handbook* has been revised to better reflect compliance with our bylaws, including an updated standard-of-care which reflects current approaches in line with what we learned from other organizations. Also, there is now an *Implementation Policies* document to help guide a consistent approach to reviewing new applicants.

Bette Beswick, the Society's long-standing Registrar, stepped down from her role in 2015. We were pleased to welcome Sheila Leggett as the Registrar in March, 2015, and her vast amount of experience - not only in her career, but specifically as a member of the ASPB - proved invaluable as we moved several of these key initiatives forward in 2015.

The committee was very busy processing applications this year, reflecting a much larger number of applicants than in previous years. Our membership is anticipating that, given the recent rate of growth, we may top 2,000 members in 2016!

While the process is now online, the committee continued to meet almost monthly in 2015 to go through deferred cases and tie up some loose ends remaining from the transfer to the online process. Applicants are now required to complete an application form, in addition to providing transcripts and obtaining references, to allow the committee to better evaluate their experience (previously this was done by reviewing a resumé).

The registration committee volunteers saw a significant amount of turnover in 2015. We lost some long-standing members including Carl Warner, Bernd Martens and Bob Shelast, who were integral committee members for many years. We also welcomed several new members to the committee, and for the first time we have representation from Edmonton and from the microbiology community.

I would like to thank the members of the committee for their dedication: Nick Bartok, Janet Bauman, Bette Beswick (past Registrar), Tara Casely, Bruce Cole, Henri de Pennart, Bernd Martens, Ricardo Moreno, Mike Peckford, Jeremy Reid, Erin Rooney (Chair), Bob Shelast, Rob Simieritsch, Markus Thormann, Shaun Toner, Collins Ugochukwo and Carl Warner. RC meetings were also attended by the Registrar and the Executive Director.

... Upstream oil and gas reclamation

(continued from page 5)

with deficits for very long before they go out of business. With less money entering the economy, there are fewer sites being remediated and reclaimed. In addition, many oil and gas companies have gone out of business and their sites will sooner or later end up in the Orphan Well Fund.

In short, fewer sites are being reclaimed because of the low oil price and more sites are being added to the Orphan Well Fund because of these companies going out of business. The situation is exacerbated by layoffs in the environmental consulting sector, also due to the low oil price.

Saskatchewan versus Alberta

Brad Wall, the Premier of Saskatchewan, has asked the Federal Government for $156 million to clean up some of the abandoned wellsites in that province[v]. For its part, the Alberta Government has no plan to inject money into the abandoned sites and has stated it expects industry to pay[vi].

What's next?

Alberta is no stranger to the cycling of oil prices and has been continually improving the reclamation and remediation sector for many years. Alberta has a great brain trust in the reclamation and remediation world and, as the old proverb says, "necessity is the mother of invention". I believe the reclamation and remediation sector will adjust and contribute to the success of the oil and gas industry by offering more innovative and successful reclamation and remediation strategies.

Elvie Reinson

It will have to in order to survive.

[i] *http://www.esaa.org/wp-content/uploads/2016/02/EWN021216.pdf, March 5, 2016*

[ii] *Update Report on Alberta Environment and Sustainable Resource Development's Upstream Oil and Gas Reclamation Certificate Program, March 31, 2013.*

[iii] *http://www.cbc.ca/news/canada/calgary/alberta-sees-huge-spike-in-abandoned-oil-and-gas-wells-1.3032434, March 5, 2016.*

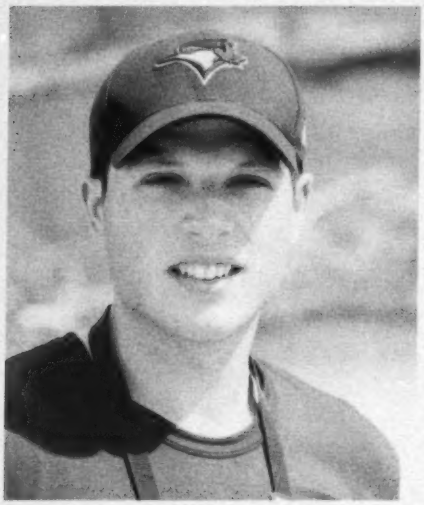
[iv] *http://www.orphanwell.ca/*

[v] *http://leaderpost.com/news/saskatchewan/wall-asks-feds-for-money-to-get-saskatchewan-oil-workers-back-on-the-job-cleaning-abandoned-wells, March 5, 2016.*

[vi] *http://calgaryherald.com/news/politics/alberta-says-industry-responsible-for-reclaiming-oil-wells, March 5, 2016.*

Bioacoustics lab investigates wildlife population disturbance

by Connor Charchuk, BSc



I am a Master's student in Dr. Erin Bayne's lab at the University of Alberta. Our lab is conducting research to investigate the impacts of anthropogenic disturbances on wildlife populations. The Bayne lab includes over 20 graduate students and dozens of undergraduates studying songbirds, hawks, amphibians, insects and more.

The research that I work on, as well as about half a dozen other students in the lab, involves an emerging field known as bioacoustics. Bioacoustics refers to the data which can be accrued from biologically derived acoustic signals. Devices designed to record biological sounds are called Autonomous Recording Units (ARUs). The sounds recorded using ARUs may take the form of bird songs, amphibian calls, or even mammal and bat vocalizations.

Graduate students in Erin Bayne's lab using bioacoustics usually have two main stages to their research: firstly, to deploy ARUs throughout northern Alberta's boreal forest in the early spring through to the summer; and secondly, to interpret recordings by identifying avian and amphibian species heard vocalizing. The Bioacoustics Unit is a collaborative effort between Erin Bayne's lab and ABMI - the Alberta Biodiversity Monitoring Institute. Dozens of field technicians are involved in deploying hundreds of ARUs to nearly a thousand unique sites in Alberta and the Northwest Territories each year. During the fall and winter, thousands of recordings are processed by expert listeners in the Bioacoustics Unit. Over 200 species of wildlife have been identified on ARU recordings, and the list keeps on growing.

Our team meets weekly to discuss complexes of challenging bird songs, to share clips of unknown sounds, and to play games to help build our skills. Lastly, but most importantly, we are working on writing several manuscripts to share our research with the scientific community.

There are several research questions being addressed in Erin Bayne's lab using ARU technologies. Personally, I am working with Alberta-Pacific Ltd., a forestry company, to understand the effects different harvesting practices have on boreal songbird communities. Other projects include PhD candidate Dan Yip's attempt to learn how loud birds sing, to estimate the distance a bird is from an ARU, to ultimately improve estimates of species density and abundance.

MSc student Natasha Annich is using ARUs to survey amphibian distributions in the boreal forest, and is particularly interested in mapping habitat requirements for the data-deficient Canadian Toad. MSc student Michelle Knaggs uses ARUs to survey bird communities in a recently burned ecosystem in Northwest Territories. MSc student Emily Upham-Mills works in the same location attempting to understand the habitat selection for Olive-sided flycatchers, a federally threatened species commonly found in burned forests. MSc student Scott Wilson has been utilizing networks of ARUs to triangulate precise locations of singing birds on the landscape.

"Bioacoustics refers to the data which can be accrued from biologically derived acoustic signals. Devices designed to record biological sounds are called Autonomous Recording Units (ARUs)...."

Ultimately, ARUs are providing us with the ability to understand a combination of both community level dynamics and individual species ecology. This is an exciting time at the Bioacoustics Unit, as our field is growing into an impactful addition to conservation biology.

(The above article first appeared in ***BIOTA*** *– the ASPB's student e-newsletter – in March 2016.)*

Starting March 1st, late fees have been added to your membership renewal.

After April 30, if you do not renew, you will automatically be removed from the register, and you will be required to re-apply to the ASPB as if you were a new member.

... The Chinchanga Firestorm

(continued from page 8)

and the 2003 California fire season. The wildland-urban interface is discussed in this chapter, with reference to the 2003 Kelowna fire. Oddly, the discussion of the 2011 Slave Lake fire is delayed to the last chapter.

The Chinchaga Firestorm concludes with "The Big Think", which is unable to pull all the bits of the puzzle together.

In the end, I would give the book credit for presenting an interesting and well-researched collection of information about forest fires. However, it lacks a central thread. As a result, this book has not been added to my bookshelf of "favourite forest books".

The Chinchaga Firestorm, When the Moon and the Sun Turned Blue. 2015 Cordy Tymstra. University of Alberta Press, ISBN 978-1-77212-003-5. $34.95, U of A press.

... notes from the E.D.

(continued from page 2)

Professional development and continuing competency are key components of being a professional, and as we look to the future we will be revisiting the continuing competency program to ensure it is reflective of the work biologists do. Mentorship is also part of professional development, and our Mentorship Program continues; we had over 150 people register for the program in 2015, although we were unable to "pair" everyone because we had more prospective protégés than mentors. In the future we will be offering opportunities for protégés to meet with mentors in a group setting so protégés can learn and network with each other while capitalizing on the knowledge of the mentors.

As our Society concludes its fortieth year, two things haven't changed: the important role of professional biologists to our society at large, and the dedication and energy of the women and men who volunteer to build our own professional society. Thank you.

Jennifer Sipkens, ASPB Executive Director

Our members publish

BIOS is pleased to include information about professional and technical publications by our members, who may provide us with the author(s) name(s), title, date published and availability (where published, and an internet link if it is available online). The bibliography will reflect material published within the year preceding and including the current BIOS edition. The following publications have been submitted by ASPB Members; the name of the Member submitting the information is **bolded**.

Leech, R., WWI Zeiss / Bausch & Lomb Prism Binoculars with Canadian Markings, *Binocular List*, 612

Leech, R., Leech, T., Zeiss 50X120 WWII Binoculars, 2015, *Binocular List*, 612 http://home.europa.com/~telscope/Zeiss.50x120.WWII.Binoculars.Leech&Leech.10.Oct.2015.pdf

Florez, C. (2015). The Natural Philosophy of Plant Form, Arber, Agnes, 2012. *International Journal of Tropical Biology and Conservation*, 63(3), 885-886.

Wilson, R., H. Jones-Otazo, S. Petrovic, M. Roushorne, L. Smith-Munoz, D. Williams and **I. Mitchell**. 2015. Estimation of sediment ingestion rates based on hand-to-mouth contact and incidental surface water ingestion. Human and Ecological Risk Assessment 21(6): 1700-1713. DOI: 10.1080/1080739.2014.974498. (http://www.tandfonline.com/doi/abs/10.1080/10807039.2014.974498#.Ve8iFZ-fiOB0)

Leech, R., 2015, *Once Apun a Time*, Friesen Press, Victoria, BC.

Demeter, M. A., Lemire, J. A., Yue, G., Ceri, H., & Turner, R. J. (2015a). Culturing oil sands microbes as mixed species communities enhances ex situ model naphthenic acid degradation. *Frontiers in Microbiology*, 6, 1–13. http://doi.org/10.3389/fmicb.2015.00936

Demeter, M. A., Lemire, J., Golby, S., Schwering, M., Ceri, H., & Turner, R. J. (2015b). Cultivation of Environmental Bacterial Communities as Multispecies Biofilms. In *Springer Protocols Handbooks*. Totowa, NJ: Humana Press. http://doi.org/10.1007/8623_2015_82

Lemire, J., **Demeter, M.**, & Turner, R. J. (2015). Protocols for Harvesting a Microbial Community Directly as a Biofilm for the Remediation of Oil Sands Process Water. In *Springer Protocols Handbooks*. Totowa, NJ: Humana Press. http://doi.org/10.1007/8623_2015_55

Hamilton, L. (2015) Rare Plant Distribution Modelling: Exploring Predictor Datasets – A Case Study in Southeast Alberta. *University of Calgary* http://theses.ucalgary.ca/handle/11023/2128

Leech, R. August 2015. Wollensak History – Binoculars & Optics. 32 p., 23 figs. http://home.europa.com/~telscope/Leech.2015.Wollensak.pdf

Leech, R. 2015. Canadian-made Binoculars, Part 1: Research Enterprises Ltd, 1939-1945. March 2015, 10 p., 9 figs. http://home.europa.com/~telscope/leech.2015.Canadian.made.binoculars.1.pdf

Leech, R. 2015. Canadian-made Binoculars, Part 2: BOP & CAL retrofits of RELs in the early 1950s. March 2015, 14 p., 14 figs. http://home.europa.com/~telscope/Leech.2015.Canadian.made.binoculars.2.pdf

Leech, R. 2015. Canadian-made Binoculars, Part 3: ELCAN roof prism, military & Civilian versions, with data on two Fujinon Replacements. March 2015, 12 p., 8 figs. http://home.europa.com/~telscope/Leech/2015.Candian.made.binoculars.3.pdf

Popil, A., and **Leech, R.** 2015. Is the Green Tortoise Beetle finding a home in Alberta. ASPB Electronic Version, BIOS 30(2): 9-10, 4 figs.

Leech, R., and A. Popil. 2015. The European Bagworm (*Dahlica* Huebner, 1813), (Lepidoptera: Psychidae), in Edmonton, Alberta, and Environs, with notes on a parasitoid (Braconidae: Microgastrinae) *Dolichogidea* sp. Bull. Ent. Soc. Canada 47(3): 6 p., 7 figs.

2016 ASPB CONFERENCE
ASPB
ALBERTA SOCIETY
OF PROFESSIONAL BIOLOGISTS
Turning Uncertainty into Opportunity
Science and regulation in changing times
April 5 - 6, 2016
The Carriage House Inn, Calgary
The theme for the 2016 Alberta Society of Professional Biologists' conference, "Turning uncertainty into opportunity: Science and regulation in changing times," will explore how poor economic conditions can give rise to unique pressures and emergent opportunities for professional biologists, and will additionally illuminate the potential repercussions of our economy on the regulatory environment in which we work. Topics will include:
• During challenging economic times, what is our role in balancing the need for sound science while safeguarding the public interest?
• What is the business case for monitoring natural resources (e.g. species at risk) during an economic downturn?
• How do recent regulatory changes affect our practice?
For more information and to register, go to www.aspb.ab.ca/conference
The Alberta Society of Professional Biologists (ASPB) is a professional regulatory body that is committed to the promotion of excellence in the practice of biology.
PHOTOGRAPHY BY BOB COOK